

CLAIMS

1. A microporous polyolefin film that comprises polyethylene and polypropylene as essential components and is composed of a laminate film of two or more layers, wherein the percentage of polypropylene blended in at least one surface layer of the film is more than 50% by weight and 95% or less and the content of polyethylene in the entire film is 50% or more and 95% or less.
2. The microporous polyolefin film according to claim 1, wherein at least one layer of the laminate film is a polyethylene single layer film.
3. The microporous polyolefin film according to claim 1 or 2, wherein the laminate film is made up of three layers.
4. The microporous polyolefin film according to claim 1, 2 or 3, wherein each of the layers that make up the laminate film has a three-dimensional network.
5. The microporous polyolefin film according to claim 1, 2 or 3, wherein the proportion of the thickness of the layer in which the percentage of propylene blended is more than 50% by weight and 95% or less is 1.5% or more and 35% or less of the entire film thickness.
6. The microporous polyolefin film according to claim 1, 2 or 3, wherein the average pore diameter is 0.02 μm or more and 1 μm or less.
7. The microporous polyolefin film according to

claim 1, 2 or 3, wherein the shutdown temperature at the time of high speed heat-up is lower than 150°C and the short-circuit temperature at the time of high speed heat-up is 190°C or higher.

8. The microporous polyolefin film according to claim 1, 2 or 3, wherein the high temperature puncture strength is 0.005 N/ μ m.

9. A lithium-ion battery separator, comprising a microporous polyolefin film that comprises polyethylene and polypropylene as essential components and is composed of a laminate film of two or more layers, wherein the percentage of polypropylene blended in at least one surface layer of the film is more than 50% by weight and 95% or less and the content of polyethylene in the entire film is 50% or more and 95% or less.

10. The lithium-ion battery separator according to claim 9, wherein at least one layer of the laminate film is a polyethylene single layer film.

11. The lithium-ion battery separator according to claim 9 or 10, wherein the laminate film is made up of three layers.

12. The lithium-ion battery separator according to claim 9, 10 or 11, wherein each of the layers that make up the laminate film has a three-dimensional network.

13. The lithium-ion battery separator according to claim 9, 10 or 11, wherein the proportion of the thickness of the layer in which the percentage of

propylene blended is more than 50% by weight and 95% or less is 1.5% or more and 35% or less of the entire film thickness.

14. The lithium-ion battery separator according to claim 9, 10 or 11, wherein the average pore diameter of the microporous polyolefin film is 0.02 μm or more and 1 μm or less.

15. The lithium-ion battery separator according to claim 9, 10 or 11, wherein the shutdown temperature at the time of high speed heat-up is lower than 150°C and the short-circuit temperature at the time of high speed heat-up is 190°C or higher.

16. The lithium-ion battery separator according to claim 9, 10 or 11, wherein the high temperature puncture strength of the microporous polyolefin film is 0.005 N/ μm .

17. A lithium-ion battery separator, comprising a microporous polyolefin film whose degree of blackening is 5% or less.